

1. Qualification: M.Sc degree	2. Programme Title: MSC REST	3. UCAS Code:	4. Program Class: Postgraduate Taught FT/PT
----------------------------------	---------------------------------	---------------	---

#### 5. Main Purposes and Distinctive Features of the Programme

- Produce a new generation of technologically-advanced scientists and technologists to lead future developments in the fields of renewable energy systems and technologies
- Train towards delivering high calibre technologists/scientists in the areas of energy materials, renewable energy systems and technologies.
- Provide insight into an advanced material's requirements for current scientific and commercial applications, i.e. those particularly relevant to renewable energy.
- Use in-depth understanding of a material's properties and behaviour in order to design and develop novel renewable energy systems
- Develop novel renewable energy technologies, with a concomitant evaluation of their shortcomings through the interdisciplinary utilisation of smart materials and systems.
- Have an ability to understand and relate to universal standards, together with regulatory issues within the renewable energy and materials arena.
- Appreciate technological, economical and technological factors that may influence multifunctional material choice, manufacturing design, processing conditions and modes of application.
- Design and perform experiments carry out modelling in the renewable energy area, and to apply appropriate assessment methods in order to interpret the significance of their findings.

#### Special Features:

M.Sc Renewable Energy Systems and Technologies is a program of study involving a series of short modules linked to extended, Integrated Learning Packages associated with each module. Successful completion of each module, together with its follow-up learning package leads to 30 credits towards the final award of an M.Sc degree, i.e. 180 credits in total.

An industrially- or University-based project, once completed to the satisfaction of the project directors/examiners, will account for 60 credits.

6. What a graduate should know and be able to do on completion of the program

To gain the qualification, the student will have demonstrated:

- 1) subject knowledge and understanding
- 2) discipline-related practical, cognitive and professional skills
- 3) further general skills and capabilities (e.g., key/transferable skills/common???)
- 4) critical awareness of key issues within their subject area
- 5) a self-critical approach as specified in the learning objectives/outcomes for approved modules in the program

Knowledge and understanding in the context of the subject(s)

- In-depth understanding of renewable energy systems, their applications and limitations.
- An ability to employ the in-depth understanding of energy materials' properties and behaviour in order to design and develop novel devices,
- Develop diagnostic and novel approaches to technological problems and shortcomings through the interdisciplinary utilisation of advanced materials, microelectronics, mechanical, chemical and information technology knowledge.
- Understand and relate to universal standards and regulatory issues within the healthcare and medical devices' arena.

Cognitive skills in the context of the subject(s)

- Application of critical analysis and constructive synthesis.
- Identification of correct design methodologies.
- Ability to synthesise a variety of concepts and solutions.
- Application of creativity and constraint
- Appraisal of technical solutions
- Development of lateral thinking.

Subject-specific practical/professional skills

- Conduct and interpret research and consultancy in the renewable energy field
- Understand IP development and management issues
- Perform cost-benefit analyses on choices of potential raw and manufactured advanced material systems
- Use of case studies to illustrate understanding of technological issues

Other skills (e.g. key/transferable) developed in subject or other contexts

- Problem solving
- Presentation techniques.
- Communication and scientific writing skills.
- Use of a range of predictive and analytical techniques.
- Application of technology
- Management and development of self-disciplinary skills
- Intellectual property development
- Statistical analysis of experimental data

7. Qualities, Skills & Capabilities Profile

A Cognitive	B Practical	C Personal & Social	D Other
Analytical and statistical methods	Report writing	Self-motivation	Environmental awareness
Application of specialised materials/methods	Presentation techniques	Team-working	Economic factors
Critical analysis of both existing and self-generated concepts.	Practical skills	Project management	Awareness of advances/trends in technology
Design and assembly of novel/specialised products	Research skills	Communication skills	Cross-discipline cultures
Synthesis and application of design knowledge	Application of modelling workshop processes	Time management	I.P
Creativity, lateral thinking,	Application of analytical		

critical analysis and constructive synthesis	modelling processes & analysis	Self learning/study skills	Ethical
--	--------------------------------	----------------------------	---------

8. Duration and Structure of Programme/Modes of Study/Credit Volume of Study Units

(1 Year full-time; minimum of 2 years part-time).

Masters Degree = 180 credits;

Intermediate Awards of Post Graduate Certificate and Post Graduate Diploma of Higher Education available at 60 and 120 credits respectively.

Module Name	Number	Core/Option	Pre-Requisite	Credit Value	Level
Introduction to renewable energy resources	REM01	core		30	M
Advanced Materials and Micro-energy Systems	REM02	core		30	M
Renewable Energy I	REM03	core		30	M
Renewable Energy Technology II: Solar thermal and Solar Cells	REM04	core		30	M
Project	REM05	core	REM01/2	60	M

## 9. Learning, Teaching and Assessment Strategy

### Learning and Teaching Methods

Practical skills are acquired by workshop sessions, demonstrations and activity-based assignments. Active learning is promoted via lectures, directed study, laboratory and modelling sessions, together with a strong, original project theme.

### Assessment Methods

Assessment tasks are linked to the objectives of each module and are normally completed by the end of each module.

Types of assessment include: successful completion of three part integrated learning packages, feedback amendments, assignments, projects, case study, viva/interviews and presentations.

### Assessment Classification System

Successful completion of each integrated learning package leads to 30 credits (dependent on the module). Subsequent accumulation of credits leads to the following:  
60 credits-Postgraduate Certificate  
120 credits-Postgraduate Diploma  
180 credits- M.Sc Degree

## 10. Other Information *(including compliance with relevant university policies)*

### Date programme first offered

September 2009

### Admissions Criteria

#### Standard Requirements

- For short course element, no formal qualifications are required.
- Admission to the M.Sc course is dependent on successful completion of the integrated learning packages and outcome of one to one interviews
- Registration on the full-time course will be subject to the university's normal entry requirement for Masters Programmes. In addition, overseas students are required to satisfy the University's English language requirements.

#### Non Standard Entry

Experience and Interview. Other cases are dealt with by the admissions tutor on an individual basis

### Indicators of Quality and Standards

- Validation by CMRI's Course Advisory Board with external subject specialists
- External Examiner monitors assignments, examinations and a selection of Research Project Dissertations.

### Minimum Period of Registration for the Part-time M.Sc Degree

The minimum period of registration for the part-time M.Sc degree course is 24 months.